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HOUSEKEEPERS' CHAT

Thursday, OCT 11 1934
U. S. Department of Agriculture

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Subject: "Hard Water and Wash Day." Information from the Bureau of Agricultural Engineering and the Bureau of Home Economics, U.S.D.A.

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"Hard water," says a friend of mine -- "hard water is worse than a hard heart." She speaks with feeling because she does every bit of her own housework, including a large washing every week, and she lives in a hard-water country. If there's one thing that makes for wash-day drudgery, it's very hard water. In fact, it's a handicap in many ways around the house. It makes both the cleaning and the laundry difficult and costly. It forms a scale in kettles, pipes and boilers. And sometimes it is so hard that it isn't good for either cooking or drinking. Probably half the homemakers in America struggle with the hard-water problem.

You see, as water runs over or through the ground, it naturally picks up soluble mineral salts that it comes in contact with. So it may contain sodium or calcium or magnesium or iron compounds, in large or small amounts. The chemists say that water is hard when it contains mineral compounds that react with soap to form new substances that don't dissolve in water but appear as a white or greyish, sticky, unpleasant scum or ring around the wash-tub. Or, to explain it in another way, if water is soft, soap makes suds; if hard, it first makes curds or scum. This scum is the bane of wash-day. It settles on clothes in spots and specks, makes the fabric harsh, and may give it a greyish look. I said "settles;" probably "sticks" would be a better word. For this curdy matter sticks to clothes for dear life in spite of many rinsings.

No wonder housewives are always asking how to get rid of these troublesome mineral salts that make water hard -- in other words, how to soften water. Some people have the mistaken notion that they can soften water by running it through an ordinary filter. Such a filter is only for the removal of sediment and suspended matter. It affects dissolved materials very little.

But, you have your choice of several methods of softening.

Some kinds of hard water you can soften just by boiling. The boiling breaks down the mineral matter and makes it settle on the bottom of the boiler or kettle in that scale most of us are so familiar with. But often boiling takes out only part of the hardness. Other mineral substances not affected by the boiling are left in the water. So you have these to reckon with.

You can install a water-softening system in your home; for example, one of the zeolite type, which will treat the whole household supply. Or you may have one that will only soften the water for laundry and bathing, so that when you draw the water from the faucet it comes out soft. Commercial laundries in hard-water countries often use this kind of system and some private homes do also.

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But most housekeepers are not so fortunate. Most of us have to depend on the familiar softening chemicals that we can add to the washing water. Most of us have to "dose the water soft," as my friend expresses it. Well, when you add such softeners, you have the problem of finding out just how much your particular kind of hard water needs. If you use too little washing soda, say, you'll still have trouble with the scum forming. If you use too much, you may damage your clothes and yellow white fabrics.

Of course, soap itself is a softener. And some people advise first using enough soap to form that scum or curd we've been talking about, and then skimming it off. The water that is left will be soft for washing. But the disadvantages of using soap as a softener are two. First, you have to use a good deal of soap if the water is very hard, so this may be wasteful and expensive. Second, you'll find this method of softening difficult, and tiresome, because the scum is so hard to remove completely.

For general washing purposes, washing soda is a good and inexpensive softener. Of course, waters differ in hardness, but I'll give you a general idea of the amount of washing soda to use in moderately hard water. First, prepare a soda solution by dissolving one pound of soda in one quart of warm water. Then use two tablespoons of this strong solution to each gallon of moderately hard washing water. Be sure all the soda is dissolved, for if any solid particles come in contact with your clothes, they'll weaken the fabric -- may even make holes.

Trisodium phosphate is another cheap softener for the general heavy household laundry. This happens to be more popular for laundry use in Europe than in this country.

Because strong alkali injures silk and wool, laundry specialists don't advise using a strongly alkaline softener, like washing soda, for softening the water for silks, wools and other delicate fabrics. In fact, they suggest that our grandmothers' plan of saving rain-water for such fine things is probably best of all. However, you can use borax or an ammonia solution. Borax and ammonia don't soften the water as completely as the soda, but they are safer for home use. The experts say that they are useful not so much for their softening powers as for their effect on the dirt in the fabric.

In general, you'll have better results with these chemicals if you add them to warm rather than cold water, and if you are very careful to see that they are thoroughly dissolved before you put in your clothes. Still another point to remember -- soft rinsing water is just as necessary as soft water for washing. In fact, if you have to choose between the two choose soft water for rinsing.

Now let's run over the main points about softening water for home laundering. Boiling softens some water. But generally you must either have a water-softening system in your home or "dose" the tub of water with some of the many water-softening chemicals on the market. Washing soda and trisodium phosphate are economical for the general household laundry. For more delicate fabrics, use borax or an ammonia solution. Or, even better, save the rain water for washing them.

Now a word about that important problem of finding out how much softening your water needs. You can learn this accurately only by having a chemist test a sample of the water. Some manufacturers of water softeners will make such tests free for prospective customers. But generally you will need to pay for such a test. If you want the name of a chemist to do such a job for you, write your State health department or the State college of agriculture or the State experiment Station.

